

COMMONFIELDS OF CAHOKIA PUBLIC WATER DISTRICT

SANITARY SEWER SYSTEM

CAPACITY, MANAGEMENT, OPERATION AND MAINTENANCE (CMOM) PROGRAM

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I. INTRODUCTION

The Commonfields of Cahokia Public Water District has developed a collection system Capacity, Management, Operation, and Maintenance (CMOM) program designed to help optimize the performance of the sanitary sewer system. In accordance with Environmental Protection Agency (EPA) documents, the major objectives of the Commonfields of Cahokia Public Water District's CMOM program include:

1. Manage, operate and maintain at all times, all parts of the collection system so that the Commonfields of Cahokia Public Water District fully complies with the Clean Water Act
2. Provide sufficient capacity to convey base and peak flows without sanitary sewer overflows for all parts of the collection system
3. Implement feasible steps to stop and mitigate the impact of sanitary sewer overflows from any portion of the collection system
4. Provide timely notification of sanitary sewer overflows from the collection system to persons with reasonable potential for exposure to pollutants from such sanitary sewer overflows
5. Develop a written summary of the CMOM program and make it, and required program audits, available to the public upon request

There are no piped overflow points within the District's sanitary sewer collection system, therefore, any system overflows are related to sewer line blockages and/or excessive infiltration and inflow. When sewer line blockages occur, they are corrected and mitigated in accordance with the District's emergency response procedures. Generally, sewer line blockages are not directly related to wet weather conditions.

A. SANITARY SEWER SYSTEM DESCRIPTION

The Commonfields of Cahokia Public Water District sanitary sewer system services approximately 5 square miles of land within the District limits, serving a population of approximately 8,100 residents. The sanitary sewer system is separate from the District's storm water system (there are no combined sewers within the District limits).

Other significant statistics of the Commonfields of Cahokia Public Water District sanitary sewer system include:

1. An average annual precipitation of 42 inches
2. More than 40 miles of gravity sewers ranging in size from 8 inches to 18

inches in diameter

3. More than 3,000 feet of force mains
4. More than 900 manholes
5. Twenty-seven (27) pump stations

Copies of the Wastewater Collection System Maps for the Commonfields of Cahokia Public Water District and adjoining communities are included in Appendix D. Areas within the Commonfields of Cahokia Public Water District wastewater collection system are those identified as Sewer Districts C5 through C8, and a portion of Sewer Districts E6 and E7. Sewer Districts C1 through C4 are the Village of Cahokia's wastewater collection system. Sewer Districts E1 through E5 and the remainder of Sewer Districts E6 and E7 are the City of East St. Louis' wastewater collection system.

Information regarding the 27 pump stations within the Commonfields of Cahokia Public Water District, including pump station name, location, number of pumps, pump manufacturer, and horsepower, are included in Appendix E.

All interceptor sewers and pump stations are operated and maintained by the Commonfields of Cahokia Public Water District. All of the Commonfields of Cahokia Public Water District's wastewater is treated at the American Bottoms Wastewater Treatment Plant in Sauget, Illinois.

B. SANITARY SEWER SYSTEM FUNDING

The Commonfields of Cahokia Public Water District's sanitary sewer system is funded by a utility fee. The utility fee provides a dedicated source of funds for the operation, maintenance, rehabilitation, and improvement of the District's sanitary sewer system.

Because the sanitary sewer utility fee is a user fee and not a tax, all properties regardless of ownership are required to pay for the services provided by the District's sanitary sewer system. This includes non-profit entities such as churches, schools and institutions, as well as properties owned by the Commonfields of Cahokia Public Water District, local municipalities, the State of Illinois, and the federal government.

In June 1976, the District approved Sewer Rate Ordinance No. 76-1 creating sanitary sewer utility fees. In August 2013, the District approved Sewer Rate Ordinance No. 2013-2 establishing the current sanitary sewer utility fees.

Under the utility structure, all residential dwelling units and churches are charged a flat rate sewer utility fee, and all commercial and industrial customers are charged a

graduated sewer utility fee based on their amount of water usage. The sanitary sewer utility charges are calculated to recover the full cost of operating, maintaining, rehabilitating, and improving the sanitary sewer collection system.

Copies of Sewer Rate Ordinance No's 76-1 and 2013-2 are included in Appendices A and B respectively.

Significant statistics from the sanitary sewer utility fee based on the 2012 - 2013 fiscal year (July 2012 to June 2013) financial data include:

1. Two thousand, three hundred and thirty-nine (2,339) customers billed
2. \$577,500 in utility fees generated
3. \$535,500 in net annual sales after deduction of transmission and trunk line reimbursement fees to the Village of Cahokia and the City of East St. Louis

In addition to the sanitary sewer system funding provided through utility fees, the Commonfields of Cahokia Public Water District also receives approximately \$20,000 in funding for sanitary sewer system operations, maintenance, rehabilitation, and improvement expenses from penalties, reconnection fees, and tap-in fees. Additional sanitary sewer system funding is also anticipated from grants and IEPA revolving loans.

The following projected expenditures have been established for the core items in the Commonfields of Cahokia Public Water District budget for the 2013 – 2014 fiscal year (July 2013 to June 2014):

Item	Budget	Percent
General office and overhead expenses	\$742,850	53%
Predictive, preventative, and corrective maintenance & repairs ⁽¹⁾	\$669,000	47%
Emergency maintenance & repairs, future equipment & infrastructure replacement, and contingency funds	\$0	0%
Total	\$1,411,850	100%

Includes tracking design life, life span, and scheduled parts replacement; identifying and fixing system weaknesses which, if left unaddressed, could lead to overflows; and fixing system components that are functioning but not at 100% capacity

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II. CMOM PROGRAM GUIDELINES

A. CMOM PROGRAM COMPONENTS

EPA's proposed CMOM program identifies six components that are generally necessary to meet the five performance standards identified in the Section I of this report. These components are:

1. Identify program goals consistent with the general standards
2. Identify administrative and maintenance functions responsible for implementing the CMOM program and the chain of communication for complying with reporting requirements for sanitary sewer overflows (SSOs)
3. Include legal authorities necessary for implementing the CMOM program
4. Address appropriate measures and activities necessary to meet the performance standards
5. Provide design and performance provisions
6. Monitor program implementation and measure its effectiveness

B. PROGRAM GOALS

Program goals help determine the course of action needed to set a CMOM program in motion. Goals define the purpose and desired results of the CMOM program. Goals may reflect performance, safety, customer service, resource use, compliance, and other considerations.

C. ADMINISTRATIVE AND MAINTENANCE FUNCTIONS

Responsibilities for managing and implementing CMOM program activities need to be clearly defined, documented, and communicated. Job descriptions help ensure that all employees know specific responsibilities and individuals have proper credentials. Determination of staff requirements for a collection system requires a working knowledge of the system and consideration of key variables.

D. LEGAL AUTHORITIES

In order to implement an effective CMOM program, the District must have sufficient legal authority to authorize implementation activities. The proposed CMOM provision identifies five classes of activities that EPA generally believes are necessary for implementing a CMOM program:

1. Control of infiltration and connections from inflow sources
2. Requirement that sewers and connections be properly designed and constructed
3. Ensure proper installation, testing, and inspection of new and rehabilitated sewers
4. Address flows from municipal satellite collection systems
5. Implement the general and specific prohibitions of the national pretreatment program (see 40 CFR 403.5)

E. MEASURES AND ACTIVITIES

Measures, activities and program requirements need to be tailored to the size, complexity and specific features of the collection system. The proposed CMOM provision specifically identifies ten general classes of measures and activities that are generally appropriate and applicable for most municipal sanitary sewer collection system programs. The ten general measures and activities are described below:

1. MAINTENANCE FACILITIES AND EQUIPMENT

Permittees need to provide adequate maintenance facilities and equipment. Maintenance facilities are locations where equipment, materials and personnel are dispatched and where operations records are kept. Increasingly, computer systems are used to manage maintenance records. Industry guidance recognizes that a properly planned and supported equipment yard is essential to collection system operation.

2. MAINTENANCE OF WASTEWATER COLLECTION SYSTEM MAPS

One of the most typical problems in collection system management and maintenance is determining the locations of sewer lines and manholes. Determining such locations is best done by keeping appropriate collection system maps up-to-date. Many agencies keep large paper maps divided

into overlapping, large-scale sections that can be bound into books that can be stored easily and taken into the field as needed. Maps and plans should be kept current by updating them when alterations or system additions occur.

3. USE OF TIMELY AND RELEVANT INFORMATION

Timely and relevant information plays a critical role in an effective CMOM program. A dynamic CMOM program focuses on planning, implementing, reviewing, evaluating and taking appropriate actions in response to available information. The key to these approaches is the ability to get information from staff in the field to managers. The use of timely, relevant information does not require that a computer or electronic database be used. A paper copy system to track information and data may be adequate. Regardless of the method for managing information, operators should have a written description of the procedures used, including procedures for operating and updating the system. If the system is computer-based, procedures should present any unique hardware and software requirements.

4. ROUTINE PREVENTATIVE OPERATION AND MAINTENANCE ACTIVITIES

A good preventive maintenance program is one of the best ways to keep a system in good working order and prevent service interruptions and system failures which can result in overflows and/or backups. In addition to preventing service interruptions and system failures, a preventive maintenance program can protect the capital investment in the collection system.

Preventive maintenance activities should ensure that the permittee:

- a. Routinely inspects the collection systems and addresses defects or other problems
- b. Investigates complaints and promptly corrects faulty conditions
- c. Provides maintenance records, an adequate workforce and appropriate equipment in working order
- d. Maintains and updates a schedule of planned activities

Preventive maintenance activities typically address:

- a. Planned, systematic, and scheduled inspections to determine current conditions and plan for maintenance and repairs
- b. Planned, systematic, and scheduled cleaning and repairs of the system based on past history
- c. Proper sealing and/or maintenance of manholes
- d. Regular repair of deteriorating sewer lines
- e. Remediation of poor construction
- f. A program to ensure that new sewers and connections are properly designed, inspected and constructed and new connections of inflow sources are prohibited
- g. A program to oversee lateral and private collection system installations that tie in to public wastewater collection systems
- h. A program to eliminate existing illegal inflow sources, and a strategy for informing and educating the public about such sources. Illegal inflow sources, such as sump pump discharges, rain gutters/downspouts, detached building, shed, and garage drains, swimming pool drains, and landscaping drainage, are all prohibited from entering the sanitary sewer system

5. CAPACITY OF THE COLLECTION SYSTEM

A critical function of a collection system is to provide adequate capacity for wastewater flows. The capacity needs of a collection system change as the system ages, new connections are made, and existing connections change their water usage. Identifying reserve capacity, hydraulic deficiencies, and capacity needs is critical for effective asset management. The capacity assessment program should ensure procedures exist and are implemented for:

- a. Determining whether adequate capacity exists in downstream portions of the collection system and treatment facilities that will receive wastewater from new connections
- b. Identifying existing capacity deficiencies in the collection system and at treatment facilities

Capacity assurance also implies the need to expand of the collection system due to community growth and system improvements. System improvements can include rehabilitation and replacement of sewer piping and manholes due to deterioration, as well as the need for greater conveyance capacity due to increased contribution to the system.

6. IDENTIFICATION AND PRIORTIZATION OF DEFICIENCIES AND CORRESPONDING REHABILITATION ACTIONS

Sanitary sewers are exposed to harsh internal and external environments. Structural condition assessment is a principle objective of any pipeline system inspection program and is important to cost-effective management of the collection system. The collection system agency should clearly identify the techniques used in the program, such as field inspections or closed-circuit television, identify areas of the collection system where various measures are employed, and describe criteria for identifying priorities for inspection and for correction. Efforts to rate the condition of system components can be used to help prioritize actions. Where rating systems are used for identifying the condition of individual components of the collection system, the rating system should be explained.

7. TRAINING

Collection system employees are exposed to numerous challenging conditions, and adequate training, including safety training, is necessary for employees to meet these challenges. An organized training program is a necessity, regardless of agency size. Training programs should address safety procedures and include training in general operations and maintenance procedures to ensure employees are adequately prepared to implement appropriate provisions of the CMOM program.

8. EQUIPMENT AND REPLACEMENT PARTS INVENTORIES

Providing adequate maintenance facilities and equipment typically includes a process for identifying critical parts needed for system operation, and maintenance of an adequate inventory of replacement parts. Without an adequate inventory of replacement parts, the collection system may experience extended overflow events in the event of a breakdown or malfunction including extended service outages for customers. The process for identifying critical parts can be based on a review of equipment and manufacturer's recommendations, supplemented by the experience of the maintenance staff. The amount and types of equipment and tools held by a utility depend on the size, age and condition of the system. The less corrective maintenance required and

more scheduled preventive maintenance done, the fewer emergency supplies are required to be kept in stock.

9. BACKWATER VALVES AND SUMP PUMPS

The Commonfields of Cahokia Public Water District recommends that backwater valves be installed in building drain lines when the lowest plumbing drain in the building is lower than the top of the nearest upstream sanitary sewer manhole in order to eliminate, or substantially reduce, sanitary sewer backups. Such backwater valves are recommended for all new construction or changes in building ownership or title, unless the property owner signs a waiver releasing the District of any liability due to the occurrence of a sanitary sewer backup. Backwater valves must be properly installed and maintained by the property owner.

10. GREASE CONTROL PROGRAM

All commercial and industrial property owners are required to develop and implement a formal grease control program for their facilities. Each facility's grease control practices, grease control equipment, and maintenance records are subject to periodic, unannounced inspection by the Commonfields of Cahokia Public Water District.

F. DESIGN AND PERFORMANCE PROVISIONS

An effective program that ensures that new sewers (including building laterals/connections) are properly designed and installed can help avoid permanent system deficiencies that could create or contribute to future overflow events and/or operation and maintenance problems. Similarly, major rehabilitation and repair projects are opportunities to ensure that work is done correctly in a way that will minimize future problems. The proposed CMOM provision would require permittees to develop and implement programs to ensure:

1. Requirements and standards are in place for the installation of new collection system components and for major rehabilitation projects
2. Procedures and specifications exist for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects that are implemented

G. MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS

Accurate sewer performance information is an important part of improving collection system performance and is a core task of any asset management program. EPA's proposed CMOM provision would require permittees to monitor the implementation and, where appropriate, measure the effectiveness of elements of their CMOM programs. Satisfaction of this requirement typically would include identifying performance indicators to describe and track the implementation of various aspects of their CMOM programs. Performance indicators are ways to quantify and document the results and effectiveness of control efforts. Performance indicators also can be used to measure and report progress towards achieving goals and objectives and to guide management activities.

III. PROGRAM GOALS AND MISSION STATEMENT

The Mission Statement for the Commonfields of Cahokia Public Water District is "to prolong the life of the collection system infrastructure and transport wastewater to the point of treatment without disruption or overflows, while meeting the needs of its customers, protecting surface and ground water resources, and complying with all Federal and State regulations."

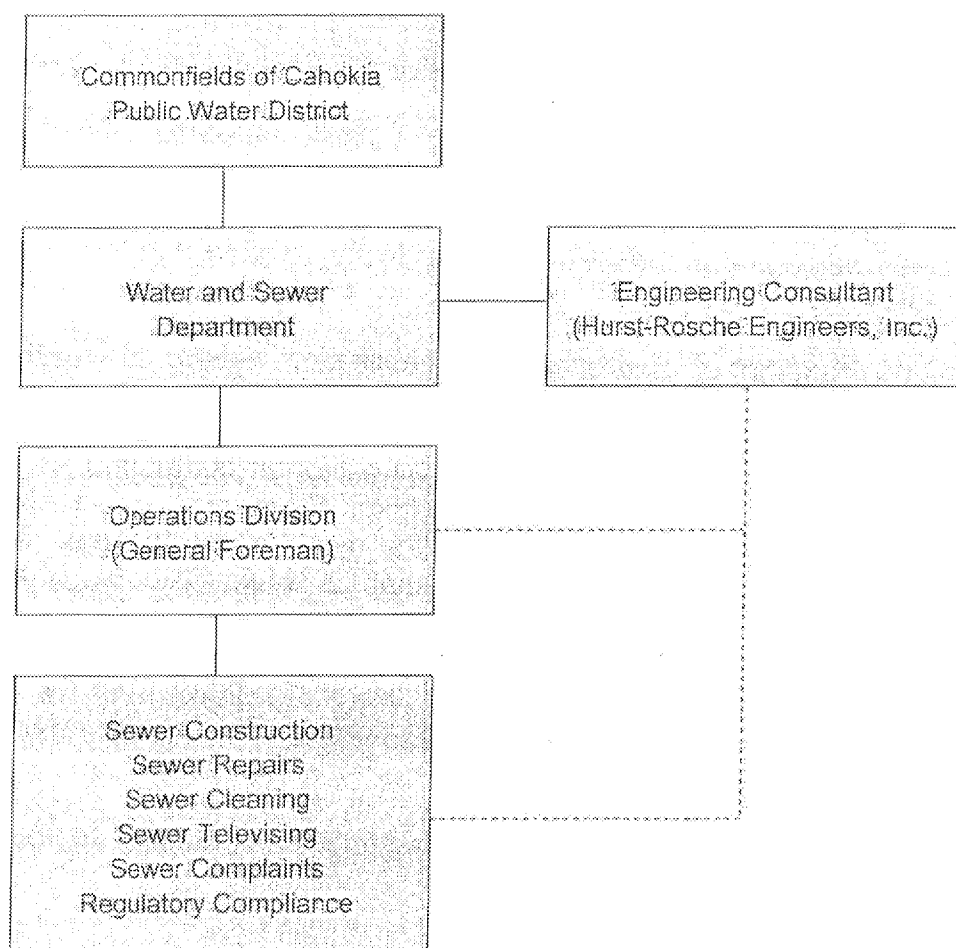
Program goals for the Commonfields of Cahokia Public Water District include:

1. Manage, operate and maintain the collection system to provide uninterrupted sanitary sewer service for all customers in the service area
2. Implement programs and procedures to reduce and mitigate the impact of sanitary back-ups and sewer overflows in the sanitary sewer system
3. Ensure that new sewers (including building laterals/connections) are properly designed and installed
4. Identification and prioritization of capacity and structural deficiencies in the sanitary sewer system
5. Implementation of cost-effective rehabilitation action on identified and prioritized structural or capacity deficiencies
6. Receive, document, and respond to all customer complaints or problems relating to the sanitary sewer system. Response on backups and overflows shall be within 2-hours of the report of the incident. Response on all other complaints or problems shall be within 72 hours of the report of the incident
7. Provide timely notification of sanitary sewer overflows from the collection system to all persons with reasonable potential for exposure to pollutants from such sanitary sewer overflows
8. Comply with all state and federal regulations pertaining to the sanitary sewer system
9. Develop a written summary of the CMOM program and make it, and required program audits, available to the public

IV. ADMINSTRATIVE AND MAINTENANCE FUNCTIONS

A. ORGANIZATIONAL CHART

A sanitary sewer utility requires good organization and competent staff to provide the quality services demanded by its customers. To facilitate this effort, the District has developed an organizational structure designed to be responsive to the needs of its customers while being fiscally responsible at the same time. The organizational chart presented below depicts the decision making hierarchy for the Commonfields of Cahokia Public Water District.



B. STAFFING PLAN

The Commonfields of Cahokia Public Water District is staffed during the hours of 8:00 A.M. to 4:30 P.M. on Monday through Friday. Calls to the Commonfields of Cahokia Public Water District after normal working hours are routed to the Cahokia Police Department, who then contacts the Commonfields of Cahokia Public Water District to respond to any reported problems. To insure quick, reliable notification of a problem, mobile telephones are carried by the on-call staff.

C. SPECIFIC STAFFING

The Commonfields of Cahokia Public Water District is staffed by a total of twelve (12) full-time employees organized by specific duties, including a full time General Foreman and six full time office workers. All operations staff assigned to the operation and maintenance of the sanitary sewer system are supervised by the General Foreman.

Engineering staff from the District's engineering consultant, Hurst-Rosche Engineers, Inc., East St. Louis, Illinois provides engineering support for the operation, maintenance, rehabilitation, replacement, and improvement of the sanitary sewer system.

The Commonfields of Cahokia Public Water District's Administrative Staff also provides support by answering, documenting, and forwarding any phoned in complaints regarding the sanitary sewer system to the appropriate operations staff.

D. RECORD KEEPING

There are a myriad of record keeping activities associated with the operation and maintenance of a sanitary sewer utility. Therefore, accurate and complete record keeping is crucial. Equally important are the mechanisms for archiving and retrieving the collected data.

Historically, the system has been set up for manual, hard copy, records. Recently, more and more of this data is kept in digital format.

Currently, the Commonfields of Cahokia Public Water District keeps records on many activities, including the following:

1. Wastewater collection system maps
2. Sewer system inspections
3. Manhole inspections

4. Pump station inspections
5. Manhole replacement information
6. Pump station repair information
7. Sewer replacement information
8. Sewer point repair information
9. Sewer televising data
10. Sewer lining information
11. Sanitary sewer overflow data
12. Sanitary sewer system complaint forms

Copies of the wastewater collection system maps, manhole inspection sheets, pump station inspection checklist, and sanitary sewer system complaint forms are included in Appendices D, F, G, and H respectively.

E. EMERGENCY RESPONSE PROCEDURES

The Commonfields of Cahokia Public Water Department's Emergency Response Plan contains procedures and contingency plans to respond to emergencies throughout the District, including emergencies affecting the District's sanitary sewer system. The Emergency Response Plan takes into consideration vulnerable points in the sewer system, severe natural events, failure of critical system components, and vandalism or third party events.

Effective emergency management planning requires considerable coordination and forethought. There are various types of emergencies and/or disasters that can have a very negative impact on the operation of the sanitary sewer system.

When a dry weather sanitary sewer back-up occurs, sewer cleaning equipment is used to clean the blocked sewer. If that effort is unsuccessful, internal closed circuit television equipment is used to inspect the line to determine the exact nature of the obstruction. If more aggressive cleaning or root removal won't solve the problem, emergency underground utility locates are requested and the area is excavated to make the necessary repair.

When wet weather sanitary sewer overflows or basement back-ups occur, the

Operations Staff check the downstream collector and interceptor sewers to see if they are surcharged. If the downstream collector and interceptor sewers are surcharged, the line with the sanitary sewer overflow or basement back-up will be flagged for further inspection.

The Emergency Response Plan includes an up-to-date list of the names, titles, phone numbers, and responsibilities of emergency response personnel. Work crews have immediate access to tools and equipment necessary to respond to emergency situations, including containment equipment and supplies (booms, inlet covers, etc.) to protect the storm drainage system.

Water District staff receive awareness training on responding to emergency situations, including notifications to the Illinois Emergency Management Agency, the St. Clair County Health Department, and the local drinking water authorities (the Columbia Water Department, Commonfields of Cahokia Public Water District, Illinois American Water Company, and/or the Village of Cahokia Water Department) as appropriate.

Should any workplace accidents occur, they will be investigated by District management personnel. Any findings resulting from accident investigations will be incorporated into the employee training program.

The District's Emergency Response Plan is updated on an as annual basis. A copy of the Emergency Response Plan is on file at the Commonfields of Cahokia Public Water District office.

F. SANITARY SEWER OVERFLOW (SSO) NOTIFICATION

The Commonfields of Cahokia Public Water District is proactive in working to prevent releases of sanitary sewage into the environment. However, it is not possible to prevent all such events, and therefore, the Commonfields of Cahokia Public Water District has adopted a Chain of Communication for Reporting Sanitary Sewer Overflows which outlines the following public notification protocol:

1. Contact local Illinois Environmental Protection Agency (IEPA) office within 24- hours of the event, and submit a Sanitary Sewer Overflow or Bypass Notification Summary Report within 5 days of the occurrence. The contact number for the local IEPA office is (618) 346-5120
2. Post sign(s) where appropriate at the site of a release event immediately upon discovery and confirmation of such an event and leave them up for up to one (1) week after the source of the release has been corrected to warn affected parties of potential health hazards associated with the SSO

The "Sanitary Sewer Overflow or Bypass Notification Summary Report" will contain the

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following information:

1. Location of the SSO
2. Receiving water body, if any
3. Estimate of the volume of the SSO.
4. A description of the sewer system component from which the release occurred, including, but not limited to, manholes, pipe, and pipe cracks
5. Estimated date and time when the SSO began and stopped or will be stopped
6. Cause or suspected cause of the SSO
7. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the SSO

A copy of the Sanitary Sewer Overflow or Bypass Notification Summary Report is included in Appendix I.

V. LEGAL AUTHORITIES

Proper control of the sanitary sewer system includes establishing appropriate ordinances to provide regulatory/legal authority to insure optimal performance and compliance with pertinent regulatory requirements. Applicable ordinances include sewer rate ordinances establishing the cost of service, and sewer use ordinances regulating the use of public and private sewers within the Commonfields of Cahokia Public Water District.

A. SEWER RATE ORDINANCES

In June 1976, the District approved Water and Sewer Rate Ordinance No. 76-1 creating sanitary sewer utility fees. In August 2013, the District approved Sewer Rate Ordinance No. 2013-2 establishing the current sanitary sewer utility fees.

Under the utility structure, all residential dwelling units and churches are charged a flat rate sewer utility fee, and all commercial and industrial customers are charged a graduated sewer utility fee based on their amount of water usage. The sanitary sewer utility charges are calculated to recover the full cost of operating, maintaining, rehabilitating, and improving the sanitary sewer collection system.

Copies of Sewer Rate Ordinance No's 76-1 and 2013-2 are included in Appendices A and B respectively.

B. SEWER USE REQUIREMENTS

In August 1984, the Commonfields of Cahokia Public Water District approved Sewer Use Ordinance No. 84-2 regulating the use of public and private sewers and drains, private sewage disposal, the installation and connection of building sewers, the discharge of water and wastes into the public sewer system and providing penalties for violation thereof, and the levying of charges for wastewater services (user charges). A copy of Sewer Use Ordinance No. 84-2, including applications for sewer permits, is included in Appendix C.

The following sewer use requirements are included in Sewer Use Ordinance No. 84-2:

1. Procedures for inspection standards, pretreatment requirements, and building/sewer approval
2. General prohibitions for fire and explosion hazards, oil, petroleum,

corrosive materials, and obstructive materials

3. Substances prohibited by the sewage treatment plant
4. Procedures and enforcement actions for fats, oils, and grease
5. The restriction of storm water connections to the sanitary sewer system

In addition, the Commonfields of Cahokia Public Water District utilizes the Standard Specifications for Water and Sewer Construction in Illinois to establish sewer use requirements for the District. Requirements that sewers and connections be properly designed and constructed, and that new or rehabilitated sewers are properly installed, tested, and inspected, are covered under the Standard Specifications for Water and Sewer Construction in Illinois.

A copy of the Standard Specifications for Water and Sewer Construction in Illinois is available from the Illinois Society of Professional Engineers, 100 East Washington Street, Springfield, Illinois 62701.

C. MUNICIPAL SATELLITE COLLECTION SYSTEMS

Municipal Satellite Collection Systems are collection systems that do not treat and discharge their wastewater, but rather convey flows to a treatment facility where the NPDES permittee is a different entity. There are no municipal satellite collection system upstream and tributary to the Commonfields of Cahokia Public Water District, however, the Commonfields of Cahokia Public Water District sanitary sewer system is a municipal satellite collection system upstream and tributary to the Village of Cahokia and City of East St. Louis' sanitary sewer systems. Wastewater from the Commonfields of Cahokia Public Water District sanitary sewer system represents approximately 25 percent of the flow through the Village of Cahokia's sanitary sewer system and approximately 10 percent of the flow through the City of East St. Louis' sanitary sewer system.

The Commonfields of Cahokia Public Water District's agreement with the Village of Cahokia is limited to documentation establishing the District's financial contribution to the Village for the operation and maintenance of pump stations and sewer lines associated with conveying waste water from the District's sanitary sewer system to the treatment facility. The District is in the process of revising the agreement with the Village of Cahokia to clarify the term of the agreement, renewal mechanisms, sewer use requirements, flow control, construction requirements, inspection standards, new connections, commercial and industrial discharge limits, sampling and permit requirements, etc. Upon completion and approval by the Commonfields of Cahokia Public Water District and the Village of Cahokia, the District's CMOM Program will be

updated to incorporate the revised Municipal Satellite Collection System agreement by reference.

The Commonfields of Cahokia Public Water District's agreement with the City of East St. Louis is a fully executed Municipal Satellite Collection System Agreement and includes the term of the agreement, renewal mechanisms, sewer use requirements, flow control, construction requirements, inspection standards, new connections, commercial and industrial discharge limits, sampling and permit requirements, etc.

A copy of the District's agreements with the Village of Cahokia and the City of East St. Louis are on file at the Commonfields of Cahokia Public Water District office.

D. WASTEWATER TREATMENT

The Commonfields of Cahokia Public Water District sanitary sewer system is a municipal satellite collection system upstream and tributary to the Village of Cahokia and City of East St. Louis' sanitary sewer systems. All wastewater from the Commonfields of Cahokia Public Water District flows through the Village of Cahokia and City of East St. Louis' sanitary sewer systems and is ultimately treated at the American Bottoms Wastewater Treatment Plant in Sauget, Illinois.

VI. MEASURES AND ACTIVITIES

A. MAINTENANCE FACILITIES AND EQUIPMENT

Adequate maintenance of the sanitary sewer system relies on the availability of equipment and parts. Maintenance facilities are locations where equipment, materials and personnel are dispatched and where operations records are kept. Industry guidance recognizes that properly planned and supported equipment facilities are essential to collection system operations.

1. Equipment

The District has the following equipment assigned to the operation and maintenance of the sanitary sewer system:

- a. One Jet/Vactor Truck
- b. Two Back Hoes
- c. One Dump Truck
- d. Pick-Up Trucks with Tools

2. Maintenance Facilities

The Equipment Services Division provides for the maintenance of and coordination for replacement of the District's sanitary sewer system maintenance equipment. The Equipment Services Division performs the following specific functions for the District's sanitary sewer system maintenance equipment:

- a. Perform preventive maintenance and repairs at proper intervals
- b. Evaluate, rehabilitate and modify equipment to include minor accident damage
- c. Oversee outside fueling services
- d. Administer a repair record system
- e. Evaluate equipment replacement and administer the bidding process for purchasing new equipment

- f. Train District personnel on the proper operation of new equipment

B. MAINTENANCE OF WASTEWATER COLLECTION SYSTEM MAPS

One of the most typical problems in collection system management and maintenance is determining the locations of sewer pipes and manholes. Determining such locations is best done by keeping appropriate collection system maps up-to-date. Maps and plans should be kept current by updating them when alterations or system additions occur.

Accurate sewer mapping is a fundamental requirement for any Sewer Utility. This mapping allows staff to do a variety of activities including: 1) answer questions from current and potential customers; 2) visually establish system performance trends; 3) track maintenance and rehabilitation activities; and 4) facilitate the orderly extension of sewer service.

The wastewater collection system maps are carried in the vehicles used by the Operations Division Staff assigned to sewer system maintenance. The maps carried by Operations Division Staff are annotated with corrections as discrepancies are discovered.

A copy of the Wastewater Collection System Maps for the Commonfields of Cahokia Public Water District and adjoining communities are included in Appendix D. Areas within the Commonfields of Cahokia Public Water District wastewater collection system are those identified as Sewer Districts C5 through C8, and a portion of Sewer Districts E6 and E7. Sewer Districts C1 through C4 are the Village of Cahokia's wastewater collection system. Sewer Districts E1 through E5 and the remainder of Sewer Districts E6 and E7 are the City of East St. Louis' wastewater collection system.

C. USE OF TIMELY AND RELEVANT INFORMATION

Timely and relevant information plays a critical role in an effective CMOM program. A dynamic CMOM program focuses on planning, implementing, reviewing, evaluating and taking appropriate actions in response to available information. The key to these approaches is the ability to get information from the field staff.

The Commonfields of Cahokia Public Water District maintains the following databases to ensure the use of timely, relevant information. These include:

1. Wastewater collection system maps
2. Sewer system inspections

3. Manhole inspections
4. Pump station inspections
5. Manhole replacement information
6. Pump station repair information
7. Sewer replacement information
8. Sewer point repair information
9. Sewer televising data
10. Sewer lining information
11. Sanitary sewer overflow data
12. Sanitary sewer system complaint forms

D. ROUTINE PREVENTATIVE OPERATION AND MAINTENANCE ACTIVITIES

A good preventive maintenance program is one of the best ways to keep a system in good working order and prevent service interruptions and system failures which can result in overflows and/or backups. In addition to preventing service interruptions and system failures, a preventive maintenance program can protect the capital investment in the collection system. The primary goal of this CMOM is to develop a program to help insure optimal operation of the utility.

The Commonfields of Cahokia Public Water District's Sanitary Sewer Utility's Preventive maintenance activities include:

1. Routinely inspect the collection system and address defects or other problems
2. Investigate complaints and promptly correct faulty conditions
3. Provide maintenance records, an adequate workforce, and appropriate equipment in working order
4. Maintain and update a schedule of planned activities

5. Preventive maintenance activities

Sewer system inspections, including detailed manhole and pump station inspections, inspections for infiltration and inflow sources, and cleaning of the District's sewer system, are performed on an as needed basis. Manhole and Pump Station Inspection Sheets are completed for each inspection and copies are retained in the Commonfields of Cahokia Public Water District office.

Pump stations are inspected every other day. . Temporary pumps and hoses are available to bypass a pump station if necessary.

Emergency operating procedures are available for each pump station, and any pump station failures and/or overflows are responded to by District personnel. Off hour/emergency notifications are provided through the Village of Cahokia Police Department dispatcher.

The Commonfields of Cahokia Public Water District also regularly inspects the route of all force mains to assess force main conditions. Air release/vacuum valves are inspected and maintained on an as needed basis.

All pump station and/or force main failures are investigated by the Commonfields of Cahokia Public Water District, and any necessary actions are implemented to prevent future failures.

The Commonfields of Cahokia Public Water District maintains a record of all sanitary sewer system complaints received by the District and the results of their investigation/resolution. This information provides a useful tool in planning future sewer repairs and/or replacements.

E. CAPACITY OF THE COLLECTION SYSTEM

The Commonfields of Cahokia Public Water District routinely reviews the capacity of the District's sanitary sewer system to assess the future needs of the system, including:

1. Identifying growth areas and develop population projections to assess the capacity of the collection system to serve the future needs of the community
2. Determine the sewer routing and sizing of interceptor sewer extensions which will best serve the identified growth areas

Assessing projected wastewater flows and proposed sewer system infrastructure

requirements for the Commonfields of Cahokia Public Water District's undeveloped areas include:

1. Collecting information and field survey data
2. Reviewing existing sanitary sewer conditions and capacity
3. Identifying improvements to correct deficiencies in the existing sanitary sewer system
4. Estimating construction costs
5. Evaluating financing alternatives

F. IDENTIFICATION AND PRIORTIZATION OF DEFCIENCIES AND CORRESPONDING REHABILITATION ACTIONS

The Commonfields of Cahokia Public Water District's pipe televising and manhole inspection efforts and associated sanitary sewer system repairs and rehabilitation activities are prioritized using the following criteria:

1. Threat to public safety (sinkholes in streets, etc.)
2. Threat to public health (loss of sewer service, basement back-ups, etc.)
3. The severity of structural defects (manholes, etc.)

G. TRAINING

The Commonfields of Cahokia Public Water District has a comprehensive safety program to insure that the work environment for District employees is a safe and healthy one. Training is provided in the normal hazards associated with the general construction industry such as backhoe/loader use, basic electrical safety, fall protection, flagger safety, ladder safety, blood borne pathogens, material safety data sheets (MSDS), confined space entry, hydrogen sulfide hazards, etc. The District is also considering implementing Hazardous Waste Operations and Emergency Response (HAZWOPER) Awareness Training for District personnel involved in sewer and/or pump station inspections and/or maintenance. The safety program is designed to protect the general public during the normal course of operating and maintaining the system.

Training of the Commonfields of Cahokia Public Water District staff is an ongoing

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process. Safe work practices are reviewed at the start of each task, taking into consideration the risks associated with each activity, and preventative measures to mitigate those risks.

Commonfields of Cahokia Public Water District staff also receive awareness training on responding to emergency situations, including notifications to the Illinois Emergency Management Agency, the St. Clair County Health Department, and the local drinking water authorities (the Columbia Water Department, Commonfields of Cahokia Public Water District, Illinois American Water Company, and/or the Village of Cahokia Water Department) as appropriate.

Should any workplace accidents occur, they will be investigated by Commonfields of Cahokia Public Water District management. Any findings resulting from accident investigations will be incorporated into the employee training program.

H. EQUIPMENT AND REPLACEMENT PARTS INVENTORIES

The Commonfields of Cahokia Public Water District maintains a spare parts inventory for its sewer maintenance equipment and materials required for sanitary sewer repairs. The District maintains a spare parts inventory for the Jet/Vactor Truck, as well as an inventory of sewer pipe, concrete manhole adjusting rings, and manhole frames/covers commonly used in sanitary sewer system repairs.

I. BACKWATER VALVES AND SUMP PUMPS

The Commonfields of Cahokia Public Water District recommends that backwater valves be installed in building drain lines when the lowest plumbing drain in the building is lower than the top of the nearest upstream sanitary sewer manhole in order to eliminate, or substantially reduce, sanitary sewer backups. Such backwater valves are recommended for all new construction or changes in building ownership or title, unless the property owner signs a waiver releasing the District of any liability due to the occurrence of a sanitary sewer backup. Backwater valves must be properly installed and maintained by the property owner.

Sump pumps must also be properly installed and maintained by the property owner, and the sump pump discharge piping may not be connected to the District's sanitary sewer system.

J. GREASE CONTROL PROGRAM

All commercial and industrial property owners within the Commonfields of Cahokia

Public Water District are expected to conduct their operations in such a manner that grease is captured on the user's premises and properly disposed of. Commercial and industrial property owners are required to develop and implement a grease control program for their facilities. Each facility's grease control practices, grease control equipment, and maintenance records are subject to periodic, unannounced inspection by the Commonfields of Cahokia Public Water District.

VII. DESIGN AND PERFORMANCE PROVISIONS

The Commonfields of Cahokia Public Water District utilizes the Standard Specifications for Water and Sewer Construction in Illinois. These standards establish acceptable materials and practices for the design and construction of additions and improvements to the Commonfields of Cahokia Public Water District's sanitary sewer system. These standards apply to both public and private sanitary sewers and to sanitary sewer laterals.

A plumbing permit and connection fee are required for all new sanitary sewer lateral construction and any repairs or replacements of sanitary sewer laterals. The Commonfields of Cahokia Public Water District inspects all new sanitary sewer laterals, any lateral repairs, and any lateral replacements.

An Illinois Environmental Protection Agency (IEPA) construction permit must be obtained on all new public and private sanitary sewer construction. The District reviews all proposed sanitary sewer plans and specifications to determine compliance with the District's sanitary sewer standards before authorizing its approval on the IEPA permit application.

Additionally, the District engineering consultant inspects and certifies that the new sanitary sewer was built in accordance with the approved plans and specifications. Internal televised pipe inspections and manhole inspections are performed on all new sanitary sewer installations. Any pipe or manhole defects identified must be corrected before the District will assume ownership of the sewer.

VIII. MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS

The Commonfields of Cahokia Public Water District documents the following activities/items for the sanitary sewer collection system:

1. Sewer pipe and manhole cleaning efforts
2. Internal televising and manhole inspection efforts
3. Root removal efforts
4. Grease removal efforts
5. Dry weather reported blockages and basement back-ups
6. Wet-weather sanitary sewer overflows and basement back-ups
7. Cured-in-place sewer lining rehabilitation efforts
8. Pipe and manhole repair efforts
9. Compliance with the District's backwater valve and sump pump installation requirements